crystallizing said semiconductor film by heating in a way that causes said catalyst metal to diffuse through the semiconductor film and function to promote the crystallization of the semiconductor film;

forming a gettering layer in contact with said semiconductor film after the crystallization, said gettering layer including phosphorus; and

heating said semiconductor film and said gettering layer at a temperature [not lower than] from 500°C to 800°C in order to getter the catalyst metal in said semiconductor film using said gettering layer.

28. (Amended) A method according to claim 26 wherein said heating to getter the catalyst metal is continued for 1-4 hours.

34. (Amended) A method of manufacturing a device comprising:

providing a substantially intrinsic semiconductor film on an insulating surface;

providing said semiconductor film with a catalyst metal-containing material;

crystallizing said semiconductor film by heating in a way that causes said catalyst metal to diffuse through the

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semiconductor film and [functions] function to promote the crystallization of said semiconductor film;

forming a gettering layer in contact with said semiconductor film after the crystallization, said gettering layer including phosphorus; and

heating said semiconductor film and said gettering layer in order to getter the catalyst metal in said semiconductor film by said gettering layer.

36. (Amended) A method according to claim 34 wherein said heating to getter the catalyst metal is continued for 1-4 hours.

41. (Amended) A method according to claim 34 wherein said heating to getter the catalyst metal is conducted within a temperature from 500°C to 800°C.

44. (Amended) A method according to claim 42 wherein said heating to getter the catalyst metal is conducted for 1-4 hours.

50. (Amended) A method according to claim 42 wherein said heating to getter the catalyst metal is conducted within a temperature from 500°C to 800°C.

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51. (Amended) A method of manufacturing a device having a junction, said method comprising:

providing a semiconductor film comprising amorphous silicon on an insulating surface;

providing a catalyst metal-containing material on said semiconductor film;

crystallizing said semiconductor film by heating in a way that causes said metal to diffuse through the semiconductor film and to promote the crystallization thereof;

forming a gettering layer in contact with said semiconductor film after the crystallization, said gettering layer including phosphorus;

heating said semiconductor film and said gettering layer at a temperature [not lower than] <u>from</u> 500°C <u>to 800°C</u> in order to getter the metal included in said semiconductor film by said gettering layer; and

forming a doped semiconductor film on said semiconductor film to form a junction.

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53. (Amended) A method according to claim 51 wherein said heating <u>to getter the metal</u> is conducted for 1-4 hours.

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~~61~~ 34. (Amended) A method according to claim ~~59~~ 32 wherein said heating to getter the catalyst metal is continued for 1-4 hours.

~~66~~ 39. (Amended) A method according to claim ~~59~~ 32 wherein said heating to getter the catalyst metal is conducted within a temperature from 500°C to 800°C.

~~69~~ 42. (Amended) A method according to claim ~~67~~ 40 wherein said heating to getter the catalyst metal is continued for 1-4 hours.

~~75~~ 48. (Amended) A method according to claim ~~67~~ 40 wherein said heating to getter the catalyst metal is conducted within a temperature from 500°C to 800°C.

~~76~~ 49. (Amended) A method of manufacturing a device, comprising:

providing a semiconductor film on an insulating surface;

forming a catalyst metal-containing material on said semiconductor film, said catalyst being a material which facilitates crystallization of said semiconductor film to be formed more easily, but which when present in a final product of the device will degrade operation of the device;

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crystallizing said semiconductor film by heating in a way that causes said catalyst metal-containing material to diffuse into at least a part of the semiconductor film, said catalyst [metal containing] metal-containing material when so diffused functioning to facilitate said crystallization;

forming a gettering layer in contact with said semiconductor film after said crystallization, said gettering layer including phosphorus; and

processing said semiconductor film and said gettering layer to [reduce a concentration of] ~~remove at least one portion~~ reduce the concentration of said catalyst metal in said semiconductor film.

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52 81. (Amended) A method of manufacturing a device comprising:

providing a semiconductor film on an insulating surface;

providing said semiconductor film with a [metal containing] metal-containing material;

crystallizing said semiconductor film by heating in a way that causes said metal to diffuse through the semiconductor film and [functions] function to promote the crystallization of the semiconductor film;

introducing phosphorus into a portion of said crystallized semiconductor film by plasma doping; and

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heating said semiconductor film after introducing said phosphorus at a temperature [not lower than] from 500°C to 800°C in order to getter the metal in said semiconductor film.

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82. (Amended) A method of manufacturing a device comprising:

providing a semiconductor film doped with boron at a concentration of 0.001-0.1 atm% on an insulating surface;

providing said semiconductor film with a [metal containing] metal-containing material;

crystallizing said semiconductor film by heating in a way that causes said metal to diffuse through the semiconductor film and [functions] function to promote the crystallization of said semiconductor film;

forming a gettering layer in contact with said semiconductor film after the crystallization, said gettering layer including phosphorus; and

heating said semiconductor film and said gettering layer in order to getter the [catalyst] metal in said semiconductor film by said gettering layer.

Sub E8 contd

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~~83~~. (Amended) A method of manufacturing a device comprising:

providing a substantially intrinsic semiconductor film on an insulating surface;

providing said semiconductor film with a metal-containing material;

crystallizing said semiconductor film by heating in a way that causes said metal to diffuse through the semiconductor film and [functions] function to promote the crystallization of said semiconductor film;

introducing phosphorus into a portion of the crystallized semiconductor film by plasma doping; and

heating said semiconductor film after introducing phosphorus in order to getter the metal in said semiconductor film.

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~~84~~. (Amended) A method of manufacturing a device comprising:

providing a semiconductor film doped with boron at a concentration of 0.001-0.1 atm% on an insulating surface;

providing said semiconductor film with a [metal containing] metal-containing material;

crystallizing said semiconductor film by heating in a way that causes said metal to diffuse through the semiconductor film and [functions] function to promote the crystallization of said semiconductor film;

introducing phosphorus into a portion of the crystallized semiconductor film by plasma doping; and

heating said semiconductor film after introducing phosphorus in order to getter the metal in said semiconductor film.

56. (Amended) A method of manufacturing a device comprising:

providing a semiconductor film on an insulating surface;

providing a [metal containing] metal-containing material on said semiconductor film;

crystallizing said semiconductor film by heating in a way that causes said metal to diffuse through the semiconductor film and [functions] function to promote the crystallization of said semiconductor film;

introducing phosphorus into a portion of the crystallized semiconductor film by plasma doping; and

heating said semiconductor film in a nitrogen atmosphere after introducing phosphorus in order to getter the metal contained in said semiconductor film.

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86. (Amended) A method of manufacturing a device having a junction, said method comprising:

providing a semiconductor film doped with boron at a concentration of 0.001-0.1 atm% on an insulating surface;

providing a metal on said semiconductor film;

crystallizing said semiconductor film by heating to cause said metal to diffuse through the semiconductor film and to promote the crystallization of said semiconductor film;

forming a gettering layer in contact with said semiconductor film after the crystallization thereof, said gettering layer including phosphorus;

heating said semiconductor film and said gettering layer in order to getter the [catalyst] metal in said semiconductor film by said gettering layer; and

forming a junction using an intrinsic semiconductor film.

Sub E8 CIP contd

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~~87~~. (Amended) A method of manufacturing a device having a junction, said method comprising:

providing a substantially intrinsic semiconductor film on an insulating surface;

providing a metal on said semiconductor film;

crystallizing said semiconductor film by heating to cause said metal to diffuse through the semiconductor film and to promote the crystallization of said semiconductor film;

introducing phosphorus into a portion of the crystallized semiconductor film by plasma doping;

heating said semiconductor film after introducing phosphorus in order to getter the metal in said semiconductor film by said [gettering layer] phosphorus; and

forming a junction using a doped semiconductor film.

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~~88~~. (Amended) A method of manufacturing a device having a junction, said method comprising:

providing a semiconductor film doped with boron at a concentration of 0.001-0.1 atm% on an insulating surface;

providing a metal on said semiconductor film;

crystallizing said semiconductor film by heating to cause said metal to diffuse through the semiconductor film and to promote the crystallization of said semiconductor film;

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introducing phosphorus into a portion of the crystallized semiconductor film by plasma doping;

heating said semiconductor film and said gettering layer in order to getter the [catalyst] metal in said semiconductor film by said [gettering layer] phosphorus; and

forming a junction using an intrinsic semiconductor film.

~~89~~. 60 (Amended) A method of manufacturing a device comprising the steps of:

providing a semiconductor film on an insulating surface;

forming a [metal containing] metal-containing material on said semiconductor film, said metal being a material which facilitates crystallization of said semiconductor film to be formed more easily, but which when present in a final product of the device will degrade operation of the device;

crystallizing said semiconductor film by heating in a way that causes said [metal containing] metal-containing material to diffuse into at least a part of the semiconductor film, said [metal containing] metal-containing material when so diffused functioning to facilitate said crystallization;

introducing phosphorus into a portion of the crystallized semiconductor film by plasma doping; and

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processing said semiconductor film after introducing phosphorus to [reduce a concentration] ~~remove at least one~~ reduce the concentration ~~portion~~ of said metal in said semiconductor film.

~~90~~ 61. (Amended) A method according to any one of claims ~~26~~ 1, ~~34~~ 8, ~~42~~ 16, ~~51~~ 25, ~~59~~ 32, ~~67~~ 40, ~~76~~ 49 [and] or ~~81-89~~ 52 60 wherein said insulating surface comprises [a] silicon oxide.

~~91~~ 62. (Amended) A method according to any one of claims ~~26~~ 1, ~~34~~ 8, ~~42~~ 16, ~~51~~ 25, ~~59~~ 32, ~~67~~ 40, ~~76~~ 49 [and] or ~~81-89~~ 52 60 wherein [a] the concentration of said metal in said crystallized semiconductor film is not higher than 5×10^{18} atoms/cm^3.

~~92~~ 63. (Amended) A method according to any one of claims ~~26~~ 1, ~~34~~ 8, ~~42~~ 16, ~~51~~ 25, ~~59~~ 32, ~~67~~ 40, ~~76~~ 49 [and] or ~~81-89~~ 52 60 wherein a dose amount of said phosphorus is in a range from 1×10^{14} to 1×10^{17} /cm^2.

~~93~~ 64. (Amended) A method according to any one of claims ~~26~~ 1, ~~34~~ 8, ~~42~~ 16, ~~51~~ 25, ~~59~~ 32, ~~67~~ 40, ~~76~~ 49 [and 81-89] ~~81~~ 52, ~~85~~ 56, or ~~89~~ 60 wherein said semiconductor film is provided by a plasma CVD method.

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94. (Amended) A method according to any one of claims 26, 8 16 25 32 40 49 52 56 60
34, 42, 51, 59, 67, 76 [and 81-89] 81, 85, or 89 wherein said semiconductor film is provided by a low pressure CVD method.

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95. (Amended) A method according to any one of claims 26, 8 16 25 32 40 49 52 56 60
34, 42, 51, 59, 67, 76 [and 81-89] 81, 85, or 89 wherein said semiconductor film is provided by a sputtering method.

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96. (Amended) A method according to any one of claims [81] 53 60
82-89 wherein said heating or processing to getter the metal is conducted within a temperature from 500°C to 800°C.

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98. (Amended) A method according to any one of claims 81- 60
89 wherein said heating or processing to getter the metal is conducted for 1-4 hours.

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100. (Amended) A method according to any one of claims 81, 54 56 58 60
83-85 [and] or 87-89 further comprising a step of removing said portion after heating or processing said crystallized semiconductor film.

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